DETAILED ACTION

An amendment of 1/7/10 amended claims 1-13, and added new claims 14 and 15.

Claims examined on the merits are 1-15, which are all claims in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lackey et al (listed by IDS of 3/19/10) (newly applied) in view of Jung et al (5,021,350) and Chibata et al (4,138,292) and Forgione et al (3,791,927).

The claims are drawn to a process of producing granules containing filamentous fungi by growing the fungi in a culture medium, mixing the culture medium with a gelling agent and a carrier to obtain a mixture, gelling the mixture by adding the mixture drop by drop into a solution of calcium salt, and drying the resultant gelled granules to a moisture content of 13-18%.

Lackey et al disclose an alginate pellet formulation of the fungus, *Hirsutella rhossiliensis*, for biological control of plant-parasitic nematodes. A formulation of fungal inoculum is produced

by seeding a potato-dextrose broth with spores, recovering colonies by filtration, rinsing with distilled water and draining on a sieve (page 155, right col, under *Production and formulation of fungal inoculum*). The pellet is prepared (paragraph bridging pages 155 and 156) by mixing colonies of the fungus with a solution of sodium alginate, dripping the mixture into a bath of calcium chloride, and drying the resultant pellets. The pellets are dried so they are dry and hard, and have lost 95-98% of their water (page 156, left col, line 22).

Jung et al disclose inclusion of fungi in a polysaccharide gel that has been formed by cross-linking the polysaccharide (col 3, lines 61-65). The polysaccharide can be alginate (col 5, lines 12 and 33-44). A culture medium is seeded with the fungi and after culturing the culture medium, or a suspension of the fungi obtained by filtering and centrifuging the culture medium, is mixed with a solution of the polysaccharide, and the polysaccharide cross-linked to form the gel containing the fungi (col 4, lines 51-68, and col 5, lines 4-6). In an embodiment, pellets containing fungi are produced by adding alginate to a mycelium suspension to form a mixture, and adding the mixture drop by drop to a solution of calcium chloride to form gelled pellets (col, 12, lines 1-7 and col 11, lines 50-55). The gel containing fungi can be dried (col 5, line 46, col 7, line 51, and col 8, line 1 and 14).

Chibata et al disclose entrapping carrier-bound enzymes or microorganisms in a gel matrix. Binding the enzyme or microorganism to the carrier maintains activity, and entrapping the carrier-bound enzyme or microorganism in a gel prevents compacting or deformation of the carrier-bound enzyme or microorganism (col 2, lines 29-32).

Forgione et al disclose maintaining activity of enzymes bound to a carrier and reducing channeling and compacting of the bound enzyme by entrapping the bound enzyme in a reticulated cellular material (col 1, lines 30-37).

When preparing pellets containing *Hirsutella rhossiliensis* fungus as disclosed by Lackey et al, it would have been obvious to not recover colonies from the culture medium, but to mix the culture medium containing the colonies with the alginate solution as suggested by Jung et al disclosing a similar production of fungus-containing pellets and mixing culture medium containing the fungus with alginate solution. Not recovering the fungus from the culture medium would have been obvious to simplify producing the pellets, and to provide nutrients for the fungus in the pellets. It would have been further obvious to provide in the culture medium containing the fungus a carrier for binding the fungus as suggested by Chibata et al entrapping a carrier-bound enzyme or microorganism in a gel, and Forgione et al entrapping a carrier-bound enzyme in a reticulated material. The carrier would be expected to maintain activity of the fungus as suggested by Chibata et al. Lackey et al disclose drying to remove 95-98% water, and Jung et al dry to remove up to 50% water. To dry to a moisture content of 13-18% that is between removing 95-98% and 50% would have been a matter of individual preference within the ordinary skill of the art. A new and unexpected result is not seen in drying to 13-18% moisture as compared to drying to 95-98% or drying to loss 50% water. The conditions of dependent claims would have been obvious from conditions disclosed by the references.

Response to Arguments

The amendment urges that Jung et al dries to loss 0-50% water, not to 13-18% moisture as claimed. However, Lackey et al dry to loss 95-98% water, and drying to 13-18% moisture content between that disclosed by Lackey et al and Jung et al would have been obvious.

The amendment urges that in the present invention, there is not bonding between the fungus and carrier as between enzyme or microorganism and carrier disclosed by Chibata et al, and between enzyme and carrier disclosed by Forgione et al. However, the claims do not

exclude bonding between the fungus and carrier, and it appears some form of binding would be inherent.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 3/19/10 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David M. Naff/
Primary Examiner, Art Unit 1657

DMN
3/29/10